

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)	
)	
Amendment of Part 90 of the Communication's Rules)	
and Policies for Applications and Licensing of Low)	WT Docket No. 01-146
Power Operations in the Private Land Mobile)	
Radio 450-470 MHz Band)	

**COMMENTS OF
THE UNITED TELECOM COUNCIL**

Pursuant to Section 1.415 of the rules of the Federal Communications Commission (FCC or Commission), the United Telecom Council (UTC, the Council) hereby submits these comments in the above-captioned proceeding.¹

I. Introduction

1. Since its 1948 inception, UTC has been the national representative on communications matters for the nation's electric, gas, water and steam utilities and natural gas pipelines. UTC's members provide public safety and public service-related services throughout the United States and its possessions. UTC's members range in size from large combination electric-gas-water utilities that serve millions of customers, to smaller, rural electric cooperatives and water districts that serve only a few thousand customers each.
2. All utilities and pipelines depend on reliable and secure communications to assist them in carrying out their obligations to provide service to the public. UTC members rely on their mobile wireless systems to provide a variety of critical

¹ *Notice of Proposed Rulemaking*, WT Docket No. 01-146, released July 24, 2001, 66 FR 47435 (Sept. 12, 2001) ("NPR", "the Notice").

services, including communications with emergency dispatch and restoration crews, and crucial control and monitoring of critical infrastructure systems. They use low power channels to perform functions critical to the safe provision of essential public services. Many of these systems are licensed in the 450-470 MHz private land mobile radio band. Therefore, UTC has a vital interest in this proceeding.

II. Background

3. UTC adopts the background of this proceeding as outlined in the comments of the Land Mobile Communications Council (LMCC) and incorporates it herein by reference.

III. Discussion

A. LMCC position

4. UTC is an FCC-certified coordinator of the 450-470 MHz Industrial/Business Pool frequencies, among others, and an active member of the LMCC. The Council participated in the development of LMCC's original low power plan in June 1997² and has participated fully in the organization's discussions concerning the present NPR. UTC concurs with much of LMCC's position in this proceeding as discussed in its comments. However, UTC is concerned that the proposal presented in the NPR, and the organization's latest consensus position in its comments, do not reflect real changes in private land mobile spectrum use over recent years. The Council believes that a slight modification of the Part 90 rules is needed to accommodate recent change and

² See, Letter dated June 4, 1997, from Larry Miller, President, LMCC to Daniel Phythyon, Acting Chief, Wireless Telecommunications Bureau, Federal Communications Commission.

to provide flexibility for future developments. UTC takes the opportunity to respond to some of the Commission's questions in this proceeding by requesting such a modification. UTC's proposal is outlined in Section B of this discussion, below.

UTC concurs with LMCC that:

- Limitations on both transmitter output power (TPO) and effective radiated power (ERP) of mobiles are appropriate to maintain the true "low-power" nature of these frequencies while providing user flexibility. UTC concurs that mobile power for both Group A and Group B frequencies should be limited to five watts TPO/six watts ERP (see NPR at ¶10).
- 457.5375 MHz should be deleted from the low-power pool due to its use for dockside cargo operations (see NPR at ¶13).
- The most appropriate definition of the Top 100 urban areas, to determine geographic areas for low power on 40 of the 50 Group A channel pairs, is that found in §90.741 of the Commission's Rules (see NPR at ¶16).
- A determination of whether a system is within or outside the proposed 50-mile circle of the Top 100 urban areas should be made based on the licensed coordinates of the fixed station. The frequency coordination process can be used to address potential interference issues between high- and low-power systems. UTC concurs that specific rules on this issue could hinder both coordinators' spectrum management efforts and the use of new technologies as they become available.

- Mobile-only data systems should not be permitted on either Group A or Group B frequencies. The Group C – licensed, non-coordinated – frequencies are ideally suited for such systems, which can cause severe harmful interference to non-itinerant, coordinated systems.
- As tentatively concluded, the Commission should permit primary base/mobile data and primary fixed point-to-point data or telemetry on Group B frequencies (see NPR at ¶19).
- Voice operations should be permitted on a secondary basis in the Group B frequencies only as related and necessary to a licensee’s primary data and/or telemetry operations (see NPR at ¶20).
- The four proposed Group C frequencies now designated for dockside operations – 467.7625 MHz, 467.7875 MHz, 467.8125 MHz, and 467.8375 MHz – should be deleted from the group, with no alternates suggested (see *NPR* at ¶ 22).
- Radios manufactured for the Group C frequencies should be capable of operation on only the Group C frequencies and other “color dot” frequencies. This restriction is critical to reduce the incidences of unlicensed, uncoordinated use in other 150 MHz and 450-470 MHz spectrum (see NPR at ¶25).
- LMCC member coordinators have sought to retain the proposed low-power frequencies for low-power use since their initial proposal was submitted in 1997. However, there may be a small number of high-power licenses that have been granted during the intervening years. Such systems should be grandfathered for five years or until the expiration of their license term, whichever

is shorter. To enforce this limited grandfathering, automatic renewal of these licenses through the Universal Licensing System should be prevented (see NPR at ¶35).

B. Flexibility to Accommodate Mobile and Fixed Data Operations

5. The NPR seeks comment on whether Group A should continue to be designated primarily for voice operations, with non-voice operations authorized on a secondary basis or if non-voice operations should be limited to Group B (NPR at ¶18). Given the ever-increasing use of these frequencies for data systems and the changing nature of technology, UTC urges the Commission to offer greater flexibility for data systems in both Groups A and B under particular circumstances. UTC further urges that the same flexibility be extended to high-power systems across the refarmed bands.

6. Under current Rules, mobile data is permitted on a co-primary basis with voice operations on coordinated frequencies in the 450-470 MHz frequency band.³ However, the same rule section notes the need for data operations to observe frequency-sharing requirements,⁴ and more than one entity has warned against voice and non-voice systems sharing the same frequency. The concern is based on how current and future data equipment operates, in that it operates best when employing a constant carrier. As operations move to digital technology, the same requirement holds.

³ 47 C.F.R. § 90.233(b).

⁴ 47 C.F.R. §90.233(a).

7. UTC is concerned that the instant proposal does not offer sufficient spectrum for data operations, either on a base/mobile or fixed basis.⁵ Data use in general has been growing in recent years. Moreover, critical infrastructure, through lack of alternatives, must use the refarmed bands, including 450-470 MHz, for critical fixed data operations. These entities use fixed data systems heavily for control and monitoring of critical electrical, gas, water and pipeline systems throughout the country. Such systems provide real-time information concerning the safe operation of the nation's infrastructure, and respond quickly and automatically in the event of emergency, such as a sudden pressure loss in a pipeline, indicating a leak, or an imbalance in electric loads. Wireless fixed data systems, and the spectrum on which to operate them, are therefore crucial to the safety and security of the nation's infrastructure. The ten channel pairs of Group B are not sufficient for the number of low-power data systems now emerging and likely to be needed in the future.

8. Fixed data systems are located in various frequency bands. Indeed, the industry preference is the 900 MHz Multiple Address Service (MAS) frequencies due to the availability of exclusive use. However, half of this band has been re-allocated for auction⁶ and the remaining private, internal frequencies are generally unavailable in most parts of the country due to heavy licensing. Therefore, many of these systems are currently located on 450-470 MHz frequencies. Due to their secondary status, they are currently in danger of being

⁵ LMCC itself conducted a study of the low-power frequency pool as part of its work toward comments on this NPR, and noted so many licensed data systems that it would be difficult to find any frequencies that could be designated as "voice-only" without significant adverse impact on existing licensees.

forced out of operation given the ever-growing congestion on this band, and simply moving elsewhere is not an option. Without some means of protection on the refarmed bands, critical infrastructure's control systems, and therefore the nation's infrastructure itself, face potentially serious dangers.

C. The FCC Should Permit Non-Monitored Data Systems Subject to Strict Requirements.

9. UTC urges the Commission to amend slightly its centralized trunking rules, §90.187, to facilitate continuous-carrier mobile and fixed data systems meeting the same contour overlap and co-channel and adjacent-channel consent requirements. Such systems would receive protection within the same designated contours and would be elevated to primary status.⁷ This provision would solve the sharing issue addressed in paragraph 19 of the NPR concerning Group B. It also would eliminate the imbalance in the Rules between analog voice systems and other, equally or more-efficient uses of this spectrum.

10. The centralized trunked rules were designed to promote spectrally efficient systems on the refarmed bands. Through automatic frequency selection and operation, these systems definitely offer greater efficiency than conventional use. However, they employ constant carrier control channels and thus, do not monitor before transmitting and do not "share well with others." The protected environment within service contours offered by the centralized trunking rules meets the FCC's goals of promoting spectrum efficiency while eliminating the danger that these systems will cause interference to others.

⁶ See, Public Notice DA 01-1789 (July 27, 2001).

⁷ Proposed revised language for § 90.187 is attached to these comments as an Appendix.

Non-monitored data systems should be permitted on a primary basis under similar circumstances, for the same reasons. Data systems generally are far more efficient than any analog voice system, and their overall efficiency is growing as technology, and throughput levels, improve. Data systems that meet the current FCC efficiency standards of a 9.6 kbps data rate in a 12.5 kHz channel or a 19.2 kbps data rate in a 25 kHz channel have an increased spectrum efficiency over trunked voice systems by a factor of 2:1 to 3:1. These efficiencies are for systems which, like centralized trunking, use a constant carrier and have sufficient protection to ensure messages get through and are not interrupted by other licensees.⁸ Digital technologies, already in operation in other bands, require the same constant carrier operation. Such technologies generally provide for both voice and data operations, often on the same original frequency.

11. The sole change recommended is to provide data systems the same option to obtain protected contours already offered to centralized trunked voice systems. No changes in the specific protection criteria are being proposed.

Thus, there is minimal burden on either the Commission or frequency coordinators, who are well-used to the provisions of § 90.187, to implement this increased flexibility for licensees willing to invest in efficient data systems.

12. UTC recognizes that modifying § 90.187 in general would involve both low and high power operations, and thus, may extend somewhat beyond the scope

⁸ Source: Motorola. UTC understands that Motorola is submitting a similar proposal in this proceeding, and supports its proposal to the extent consistent with the position herein. However, while UTC recognizes the technical similarities between digital data and voice transmissions, UTC takes no position at this time on protection of single-channel, digital voice operations.

of the current proceeding. However, the difficulties of frequency sharing between voice and data operations pointed out throughout the Notice is the same whether systems operate at high or low power. Further, the use of contours to determine whether co-channel or adjacent-channel licensee consent is required operates equally well regardless of power level. UTC urges consideration of this important issue across the 150-512 MHz private wireless bands.⁹ This relatively slight amendment to the existing rule would offer licensees an additional option to implement spectrally efficient systems that meet their growing communication needs.

IV. Conclusion

WHEREFORE, THE PREMISES CONSIDERED, UTC respectfully requests that the Commission issue a final order in this proceeding consistent with the positions set forth above.

Respectfully submitted,

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⁹ UTC recognizes, however, that the Commission may wish to bifurcate consideration of the proposed rule change due to administrative concerns and the desire to complete the low power proceeding expeditiously.

57 C.F.R. § 90.187 with Proposed Revisions

Sec. 90.187 Spectrally Efficient Operations: Trunking, Continuous Carrier Data, and Protected Digital Operations in the bands between 150 and 512 MHz.

Certain spectrally efficient operations such as trunking, continuous carrier data and protected digital operations may be licensed with protected contours under the following conditions:

(a) Applicants for spectrally efficient ~~trunked~~ systems operating on frequencies between 150 and 512 MHz (except 220-222 MHz) must indicate on their applications (class of station code, instructions for FCC Form 601) that their system will be trunked, continuous carrier data or protected digital. Licensees of stations that are not trunked, continuous carrier data or protected digital may ~~trunk-add those operations to~~ their systems only after modifying their license (see Sec. 1.927 of this chapter).

(b) In the bands between 150 and 512 MHz, trunking, continuous carrier data or protected digital operations may be authorized under the following conditions:

(1) Where applicants for or licensees operating in the 470-512 MHz band meet the loading requirements of Sec. 90.313 and have exclusive use of their frequencies in their service area.

(2) Trunking, continuous carrier data or protected digital operations will be permitted on frequencies where an applicant or licensee does not have an exclusive service area provided that all frequency coordination requirements are complied with and written consent is obtained from affected licensees using either the procedure set forth in (b)(2)(i) and (b)(2)(ii) of this section (mileage separation) or the procedure set forth in (b)(2)(iii) (protected contours).

(i) Stations that have assigned frequencies (base and mobile) that are 15 kHz or less removed from proposed stations that will operate with a 25 kHz channel bandwidth; stations that have assigned frequencies (base and mobile) that are 7.5 kHz or less removed from proposed stations that will operate with a 12.5 kHz bandwidth; or stations that have assigned frequencies (base and mobile) 3.75 kHz or less removed from proposed stations that will operate with a 6.25 kHz bandwidth; and

(ii) Stations with service areas (37 dBu contour for stations in the 150-174 MHz band and 39 dBu contour for stations in the 421-512 MHz bands; see Sec. 90.205) that overlap a circle with radius 113 km (70 mi.) from the proposed base station.

(iii) In lieu of the mileage separation procedure set forth in (b)(2)(i) and (b)(2)(ii) of this section, applicants for trunked, continuous carrier data or protected digital facilities may obtain consent only from stations that would be subjected to objectionable interference from the proposed operations ~~trunked facilities~~. Objectionable interference will be considered to exist when the interference contour (19 dBu for VHF stations, 21 dBu for UHF stations) of a proposed trunked station would intersect the service contour (37 dBu for VHF stations, 39 dBu for UHF stations) of an existing station. The existing stations that must be considered in a contour overlap analysis are a function of the channel bandwidth of the proposed trunked station, as follows:

(A) For trunked, continuous carrier data or protected digital stations proposing 25 kHz channel bandwidth: existing co-channel stations and existing stations that have an operating frequency 15 kHz or less from the proposed trunked station.

(B) For trunked, continuous carrier data or protected digital stations proposing 12.5 kHz channel bandwidth: existing co-channel stations and existing stations that have an operating frequency 7.5 kHz or less from the proposed trunked station.

(C) For trunked, continuous carrier data or protected digital stations proposing 6.25 kHz channel bandwidth: existing co-channel stations and existing stations that have an operating frequency 3.75 kHz or less from the proposed station.

(iv) The calculation of service and interference contours referenced in paragraph (iii) of this section shall be done using generally accepted engineering practices and standards which, for purposes of this rule section, shall presumptively be the practices and standards agreed to by a consensus of all certified frequency coordinators.

(v) The written consent from the licensees specified in paragraphs (b)(2)(i) and (b)(2)(ii) or (b)(2)(iii)(A), (b)(2)(iii)(B) and (b)(2)(iii)(C) of this section shall specifically state all terms agreed to by the parties and shall be signed by the parties. The written consent shall be maintained by the operator of the trunked, continuous carrier data or protected digital station and be made available to the Commission upon request. The submission of a coordinated trunked, continuous carrier data or protected digital ~~trunked~~ application to the Commission shall include a certification from the applicant that written consent has been obtained from all licensees specified in paragraphs (b)(2)(i) and (b)(2)(ii) or (b)(2)(iii)(A), (b)(2)(iii)(B) and (b)(2)(iii)(C) of this section that the written consent documents encompass the complete understandings and agreements of the parties as to such consent; and that the terms and conditions thereof are consistent with the Commission's rules. Should a potential applicant disagree with a certified frequency coordinator's determination that objectionable interference exists with respect to a given channel or channels, that potential applicant may request the Commission to overturn the certified frequency coordinator's determination. In that event, the burden of proving by clear and convincing evidence that the certified frequency coordinator's determination is incorrect shall rest with the potential applicant. If a licensee has consented to the use of trunking, continuous carrier data or protected digital operations but later decides against ~~that the use of trunking~~, that licensee may request that the licensee(s) ~~of the trunked system(s)– cease operations the use of trunking~~. Should the ~~trunked~~ station(s) decline the licensee's request, the licensee may request a replacement channel from the Commission. A new applicant whose interference contour overlaps the service contour of a trunked, continuous carrier data or protected digital licensee will be assigned the same channel as the ~~trunked~~ licensee of the protected station only if the ~~trunked~~ licensee consents in writing and a copy of the written consent is submitted to the certified frequency coordinator responsible for coordination of the application.

(c) Trunking of systems licensed on paging-only channels or licensed in the Radiolocation Service (subpart F) is not permitted.

(d) Potential applicants proposing trunked, continuous carrier data or protected digital operation may file written notice with any certified frequency coordinator for the pool (Public Safety or Industrial/Business) in which the applicant proposes to operate. The notice shall specify the channels on which the potential ~~trunked~~ applicant proposes to operate and the proposed effective radiated power, antenna pattern, height above ground, height above average terrain and proposed channel bandwidth. On receipt of such a notice, the certified frequency coordinator shall notify all other certified frequency coordinators in the relevant pool within one business day. For a period of sixty days thereafter, no application will be accepted for coordination which specifies parameters that would result in objectionable interference to the channels specified in the notice. Potential applicants shall not file another notice for the same channels within 10 km (6.2 miles) of the same location unless six months shall have elapsed since the filing of the last such notice. Certified frequency coordinators shall return without action, any coordination request which violates the terms of paragraph (d) of this section.

(e) No more than 10 channels for trunked, continuous carrier data or protected digital operation in the Industrial/Business Pool may be applied for in a single application. Subsequent applications, limited to an additional 10 channels or fewer, must be accompanied by a certification, submitted to the certified frequency coordinator coordinating the application, that all of the applicant's existing channels authorized for trunked, continuous carrier data or protected digital operation have been constructed and placed in operation. Certified frequency coordinators are authorized to require documentation in support of the applicant's certification that existing channels have been constructed and placed in operation. Applicants in the Public Safety Pool may request more than 10 channels at a single location provided that any application for more

than 10 Public Safety Pool channels must be accompanied by a showing of sufficient need. The requirement for such a showing may be satisfied by submission of loading studies demonstrating that requested channels in excess of 10 will be loaded with 50 mobiles per channel within a five year period commencing with grant of the application.

(f) If a licensee authorized for trunked, continuous carrier data or protected digital operation discontinues ~~such-trunked~~ operation for a period of 30 consecutive days, the licensee, within 7 days of the expiration of said 30 day period, shall file a conforming application for modification of license with the Commission. Upon grant of that application, new applicants may file for the same channel or channels notwithstanding the interference contour of the new applicant's proposed channel or channels overlaps the service contour of the station that was previously engaged in trunked, continuous carrier data or protected digital operation.